

DE 195 21 866 C1
Applicant: Carl Freudenberg
Title: Force measuring device
Translation of claims

1. A force measuring device including a first force-receiving portion (1) having an opening which is opened parallel to the direction (6) of application of the force and with a bottom (2), a rubber body (3) which is surrounded by the opening and which includes a pressure sensor (4), and a second force-receiving portion (5) which is connected to the rubber body (3), wherein the pressure sensor (4) is of an annular configuration and is fitted into an annular groove in the rubber body (3), characterised in that the rubber body (3) contacts the opening in a condition of bearing loosely thereagainst and has a projection (7) which protrudes in the direction (6) of application of the force and which is snapped in position behind an aperture in the bottom (2) with a thickened portion (8) of its projecting end, and that the annular groove encloses the projection (7) in the region of the rearward end of the projection.

2. A force measuring device as set forth in claim 1 characterised in that, at the end towards the second force-receiving portion (5), the pressure sensor (4) is supported on a support ring (9).

3. A force measuring device as set forth in claim 2 characterised in that the rubber ring (9) comprises rubber of a hardness which is greater than that of the rubber body (3).

4. A force measuring device as set forth in one of claims 1 through 3 characterised in that, at the end towards the bottom (2), the pressure sensor (4) is supported on a closure ring (10).

5. A force measuring device as set forth in claim 4 characterised in that the closure ring (10) comprises a tough plastic material or metal.

6. A force measuring device as set forth in one of claims 1 through 5 characterised in that, at its projecting end, the annular groove is constricted by a radially inwardly projecting bead (11) and the closure ring (10) is snapped in position behind the bead (11).

7. A force measuring device as set forth in one of claims 1 through 6 characterised in that the first and/or the second force-receiving portion (1, 5) are at least partly formed by cold-worked metal portions.

8. A force measuring device as set forth in one of claims 1 through 7 characterised in that the rubber body (3) and/or the projection (7) are resiliently biased in the direction of application of the force.

9. Use of the force measuring device as set forth in one of claims 1 through 7 in sensing the accelerator pedal force of a motor vehicle for displacement of the throttle flap valve or delivery quantity of the injection pump of an internal combustion engine.

